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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,532	08/01/2001	Takayuki Yamamoto	Q65685	3507

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EXAMINER

ZALUKAEVA, TATYANA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 11/04/2002

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/918,532

Applicant(s)

YAMAMOTO ET AL.

Examiner

Tatyana Zalukaeva

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 6-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamamoto et al (U.S. 6,376,633).

Yamamoto_ discloses a method of making a pressure sensitive adhesive and PSA obtained by this method, the process comprising continuously polymerizing alkyl (meth)acrylate monomers in the presence of carbon dioxide as a diluent to obtain polymers having a weight average molecular weight of 400,000 or more. Polymerization temperature ranges from about 20 to 100°C (abstract). A radical polymerization initiator, such as one described in col. 2, lines 53-63 along with suitable acrylic monomers and carbon dioxide is fed into a continuous reactor. The polymerization time is usually from 2 hours (120 min) to 20 hours (col. 3, lines 12-14). With the regard to the

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limitations pertaining to polydispersity of obtained polymers, which is a concern of the instant claims 9 and 10, it is believed that since the polymers of Yamamoto are identical to those instantly claimed, and since they are made by essentially the same process, as instantly claimed, the polydispersity characteristic of Yamamoto polymers will be inherently identical to those instantly claimed.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4.

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of the following : McGinnis et al (U.S 6,444,772) or Bamba et al (U.S. 6,224,938), each one individually.

6. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al (U.S. 6,376,633).

McGinnis: discloses continuous polymerization process of acrylic monomers with other comonomers to obtain pressure sensitive adhesives (PSA) , and the PSA obtained by this process PSA polymers can be obtained in supercritical fluids, such as supercritical carbon dioxide and in the presence or absence of a cosolvent, such as toluene. Among suitable monomers are acrylates listed in particular in col. 3, lines 34-38 and 60-67, see also abstract, col. 3, lines 32-36. Molecular weight of acrylate polymers is given in Tables I and III.

Bamba: discloses a method for producing pressure sensitive adhesive sheet or tape comprising subjecting a mixture of monomers to be polymerized to polymerization in an inert fluid in a supercritical state (abstract). Examples of monomers to be

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polymerized include acrylic acid monomers, listed in col. 2, lines 46-51 and others listed in col. 2, lines 53-65. Polymerization is performed in the presence of conventional free radical initiators (col. 3, lines 5-11, one of preferable supercritical fluid is named as carbon dioxide in col. 3, line 17. Polymerization temperature is from 20-100°C.

Continuous process of polymerization is described in col. 4, lines 35-50. Furthermore, according to the method of the invention, in ejecting the pressure-sensitive adhesive to a low-pressure region, the residual monomer and low molecular weight components, which have a possibility to lower the pressure-sensitive adhesive properties, can be evaporated off simultaneously with the evaporation of the inert fluid.)paragraph bridging col. 4 and 5).

Yamamoto discloses a method of making a pressure sensitive adhesive and PSA obtained by this method, the process comprising continuously polymerizing alkyl (meth)acrylate monomers in the presence of carbon dioxide as a diluent to obtain polymers having a weight average molecular weight of 400,000 or more. Polymerization temperature ranges from about 20 to 100°C (abstract). A radical polymerization initiator, such as one described in col. 2, lines 53-63 along with suitable acrylic monomers and carbon dioxide is fed into a continuous reactor. The polymerization time is usually from 2 hours (120 min) to 20 hours (col. 3, lines 12-14).

The disclosures of McGinnis, Bamba and Yamamoto differ from the instant claims by different polymerization time.

However, none of the above references elucidate the significance of this parameter for polymerization process and/or for the characteristics of obtained polymers.

As it well known in the art time and temperature are those parameters, which are conventionally adjusted to achieve the optimum of molecular weight (reduce chain transfer reactions), polydispersity, residual monomer content. Bamba, for example, motivates a person skilled in the art take measures to reduce residual monomer content, such as ejecting the pressure-sensitive adhesive to a low-pressure region, to evaporate the residual monomer and low molecular weight components, which have a possibility to lower the pressure-sensitive adhesive properties.

Therefore, a person skilled in the art would have found it obvious to adjust the reaction time, (which is a result effective parameter, as explained above) , depending on the desired balance of polydispersity and molecular weight of resulting polymers and thus to arrive at the instant claims.

Discovery of optimum value of a result effective variable in known process is within the skills of one with ordinary skill in the art and would have been obvious, ***In re Boesch and Slaney*** 205 USPQ 215 (CCPA 1980).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. All U.S. Patents granted to DeSimone et al presented in PTOL-

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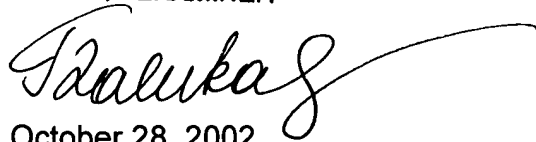
892 describe polymerization of acrylic monomers in the presence of liquid or supercritical carbon dioxide under free radical conditions; Kanada et al (U.S. 6,461,725) discloses a pressure sensitive adhesive obtained by polymerization of acrylic monomers under free radical conditions in a supercritical carbon dioxide :

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

TATYANA ZALUKA
PATENT EXAMINER



October 28, 2002

Tatyana Zalukaeva
Examiner
Art Unit 1713